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### APPEAL BRIEF

Applicant : Jörneus, et al.

App. No : 10/583,817

Filed : December 8, 2008

For : IMPLANT

Examiner : Eide, Heide Marie

Art Unit : 3732

Conf # : 8735

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Commissioner for Patents

P.O. Box 1450

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Sir:

In accordance with the Notice of Appeal filed, Appellants submit this Appeal Brief for consideration in U.S. Patent Application No. 10/583,817, entitled IMPLANT.

Docket No.: NOBELB.244NP  
Appl. No.: 10/583,817  
Filing Date: December 8, 2008

**Customer No.: 20995**

## TABLE OF CONTENTS

I. REAL PARTY IN INTEREST .....	3
II. RELATED APPEALS AND INTERFERENCES .....	3
III. STATUS OF CLAIMS.....	3
IV. STATUS OF AMENDMENTS .....	3
V. SUMMARY OF CLAIMED SUBJECT MATTER .....	3
VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL.....	5
VII. ARGUMENT.....	6
A.    The Specification Supports the “Greater Than 20%” Limitation .....	6
B.    Claim 1-2, 5-9, 13-14 and 15-22 are Improperly Rejected Under Section 103(a). 1.    Summary of Ricci and Dinkelacker.....	7
2.    The Proposed Combination of Ricci and Dinkelacker is Improper.....	9
3.    The Examiner has Used Improper Hindsight Reasoning in Applying the Combination of Ricci and Dinkelacker.....	11
4.    The Proposed Combination Fails to Disclose Each and Every Feature of Claims 1 and 19. ....	12
C.    Conclusion .....	13
VIII. CLAIMS APPENDIX .....	14
IX. EVIDENCE APPENDIX.....	17
X. RELATED PROCEEDINGS APPENDIX .....	18

Docket No.: NOBELB.244NP  
Appl. No.: 10/583,817  
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## **I. REAL PARTY IN INTEREST**

The real party in interest is Nobel Biocare Services AG, Balz Zimmerman-Strasse 7, 8152 Glattbrugg, Switzerland, which is the owner of the patent application by virtue of an assignment from the inventor at Reel No. 021951, Frame No. 0571.

## **II. RELATED APPEALS AND INTERFERENCES**

No related appeals, interferences, or court proceedings are currently pending.

## **III. STATUS OF CLAIMS**

Claims 1, 2, 5-9, and 13-22 are currently pending in the application, and these claims are the subject of this appeal. Claims 3-4 and 10-12 were canceled previously. Claims 1, 2, 5-9, and 13-22 were rejected in the Office Action dated February 8, 2011. The pending claims are listed in the Claims Appendix.

## **IV. STATUS OF AMENDMENTS**

No amendments are outstanding.

## **V. SUMMARY OF CLAIMED SUBJECT MATTER**

Claims 1, 2, 5-9, and 13-22 are being appealed. Claims 2, 5-9, and 13-18 depend from Claim 1. Claims 20-22 depend from independent Claim 19. Claim 1 is directed to a dental implant and includes at least the following features:

A dental implant (5) for insertion into a hole (4) formed in a jaw bone (1) and exposure to an impinging force or impinging forces, the dental implant (5) comprising a threaded lower portion (5a) and one or more peripherally extending surfaces (14a) which are arranged at an upper portion (5b) of the dental implant above the threaded lower portion and are configured to be placed against a jaw bone part at an outlet opening of the hole (*see Present Application, p. 1, lines 6-10, p. 5, lines 5-12, and Figure 1*), wherein the one or more peripherally extending surfaces (14a) are provided with a pattern of grooves and/or recesses (10a-c, 16a-f, or 18a-d) (*see id. at p. 5, lines 14-22 and Figures 1 and 4-7b*), at least a portion of the pattern of grooves and/or recesses (10a-c, 16a-f, or 18a-d) being inclined with respect to a longitudinal axis (5c, 15) of the implant (5) and an axis extending perpendicular to the longitudinal axis (5c, 15) of the implant (5) (*see id. at p. 5, lines 33-38 and Figures 1 and 5*), the pattern of grooves and/or recesses

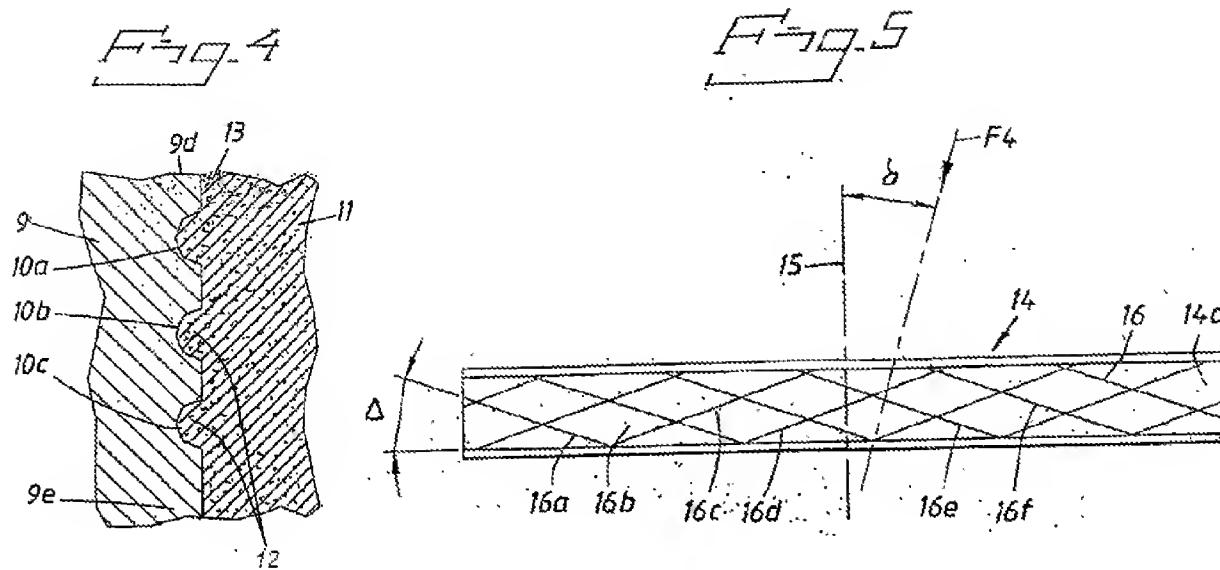
(10a-c, 16a-f, or 18a-d) including grooves and/or recesses extending in at least two directions of inclination (*see id.* at p. 7, lines 13-16 and Figure 5) and wherein the grooves and/or recesses have a depth (D) which lies in the range of about 50-100  $\mu\text{m}$  and a width (B) in the range of about 100-150  $\mu\text{m}$  (*see id.* at p. 2, lines 34-36).

Further, Claim 19 is directed to a dental implant and includes at least the following features:

A dental implant (5) for insertion into a hole (4) formed in a jaw bone (1), the dental implant (5) comprising a lower threaded portion (5a) and a collar arranged at an upper portion (5b) of a dental implant (1) above the lower threaded portion (5a) (*see id.* at p. 5, lines 5-12, and Figure 1), the collar including a pattern of grooves and/or recesses (10a-c, 16a-f, or 18a-d) (*see id.* at p. 5, lines 14-22 and Figures 1 and 4-7b) which are configured to be placed against a jaw bone part at an outlet opening of the hole (*see id.* at p. 5, lines 5-12, and Figure 1), at least a portion of the pattern of grooves and/or recesses (10a-c, 16a-f, or 18a-d) being inclined with respect to a longitudinal axis (5c, 15) of the implant (5) and an axis extending perpendicular to the longitudinal axis (5c, 15) of the implant (5) (*see id.* at p. 5, lines 33-38 and Figures 1 and 5), the pattern of grooves and/or recesses (10a-c, 16a-f, or 18a-d) including grooves and/or recesses extending in at least two directions of inclination (*see id.* at p. 7, lines 13-16 and Figure 5) and wherein the grooves and/or recesses have a depth (D) which lies in the range of about 50-100  $\mu\text{m}$  and a width (B) in the range of about 100-150  $\mu\text{m}$  (*see id.* at p. 2, lines 34-36).

With respect to one illustrated embodiment, Figures 4 and 5 of the present Application illustrate partial views of an implant comprising a pattern of grooves and/or recesses according to an embodiment within the scope of amended Claim 1. Figure 5 illustrates the grooves and/or recesses 16a, 16b, 16c, 16d, 16e, 16f are disposed on a peripherally extending surface 14a of the implant. As shown in Figure 5 (and Figures 6-7, not shown herein), at least a portion of the grooves and/or recesses 16a, 16b, 16c, 16d, 16e, 16f are inclined with respect to a longitudinal axis 15 of the implant and pattern of grooves and/or recesses includes grooves and/or recesses extending in at least two directions of inclination.

These features are shown below in Figures 4-5:



## VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

- A. The objection to the Specification as failing to provide proper antecedent basis for the claim limitation of "greater than 20% of a given groove and/or recess is inclined relative to the longitudinal axis of the implant."
- B. The rejection of Claims 1-2, 6-9, 13-14 and 17-22 under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,419,491 issued to Ricci, et al. (hereinafter "Ricci") in view of U.S. Patent No. 6,364,663 issued to Dinkelacker (hereinafter "Dinkelacker").
- C. The rejection of Claim 5 under 35 U.S.C. 103(a) as being unpatentable over Ricci in view of Dinkelacker and further in view of U.S. Publication No. 2004/0121286 issued to Aravena, et al. (hereinafter "Aravena").
- D. The rejection of Claims 15-16 under 35 U.S.C. 103(a) as being unpatentable over Ricci in view of Dinkelacker and further in view of U.S. Patent No. 6,283,754 issued to Wöhrle (hereinafter "Wöhrle").

## VII. ARGUMENT

Independent Claims 1 and 19, as well as their dependent claims, are improperly rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Ricci and Dinkelacker. Appellants respectfully submit that the rejection under Section 103(a) should be withdrawn because the proposed combination fails to disclose each and every feature of Claims 1 and 19. Further, no reason is provided for modifying the proposed combination in a manner that would produce a dental implant as recited in either Claims 1 or 19.

### A. The Specification Supports the “Greater Than 20%” Limitation

The written description requirement is met because the subject matter of Claims 17 and 21 is adequately described in the specification as filed. M.P.E.P. 2163 notes that, “the written description requirement prevents an applicant from claiming subject matter that was not adequately described in the specification as filed.” Here, the specification recites that in some embodiments,

each surface is provided with a pattern of grooves and/or recesses and that some, for example 20% or more, of the grooves and/or recesses are arranged so that, in the implanted position, they extend substantially at right angles in relation to said force or forces when these latter assume a principal direction or principal directions differing from the longitudinal direction of the implant.<sup>1</sup>

Appellants respectfully submit that a person of skill in the art understands that the disclosed range of “20% or more” encompasses between 20% and 100% of the groups and/or recesses. Accordingly, a person of skill would will believe that the specification supports a claim reciting that, “greater than 20% of a given groove and/or recess is inclined relative to the longitudinal axis of the implant.” Appellants are not attempting to improperly broaden the range or claim a range that is not already disclosed.<sup>2</sup> Although the claimed range may be a subgenus of “20% or

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<sup>1</sup> See Present Application, p. 2, lines a 17-26 (emphasis added).

<sup>2</sup> See M.P.E.P. 2163.05 (discussing *In re Wertheim*, 541 F.2d 257, 191 USPQ 90 (CCPA 1976), in which “the ranges described in the original specification included a range of ‘25%- 60%’ and specific examples of ‘36%’ and ‘50%.’ A corresponding new claim limitation to ‘at least 35%’ did not meet the description requirement because the phrase ‘at least’ had no upper limit and caused the claim to read literally on embodiments outside the ‘25% to 60%’ range, however a limitation to ‘between 35% and 60%’ did meet the description requirement.” In contrast to *Wertheim*, Appellants note that in the present Application, the upper range of 100% is already

more,”<sup>3</sup> Appellants respectfully submit that “greater than 20%” is adequately described in the specification and therefore provides proper antecedent basis for Claims 17 and 21. Therefore, Appellants respectfully request that the objection to the specification be withdrawn.

In addition, Appellants note that Claims 6, 9 and 20 have been rejected due to informalities suggested by the Examiner. Appellants respectfully note these rejections and will address these informalities when allowable subject matter is settled upon.

**B. Claim 1-2, 5-9, 13-14 and 15-22 are Improperly Rejected Under Section 103(a)**

Claims 1-2, 6-9, 13-14 and 17-22 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Ricci in view of Dinkelacker. Claim 5 also stands rejected under Section 103(a) as being unpatentable over Ricci in view of Dinkelacker and further in view of Aravena. Finally, Claims 15-16 stand rejected under Section 103(a) as being unpatentable over Ricci in view of Dinkelacker, and further in view of Wöhrle. Appellants respectfully submit that these rejections should be withdrawn at least because the proposed combination of Ricci and Dinkelacker is improper and is the result of impermissible hindsight reasoning. Even assuming arguendo that the proposed combination was proper, the proposed combination does not teach each and every feature recited in at least Claims 1 and 19.

**1. Summary of Ricci and Dinkelacker.**

Ricci is directed to a dental implant system that includes an implant having a collar section and a distal anchor-like section.<sup>4</sup> The collar section can have first ordered pattern or “microgeometric repetitive patterns that define a guide for preferential promotion of the rate, orientation and direction of growth colonies of cells of said maxillofacial bone or tissue which are in contact with said surface pattern.”<sup>5</sup> Ricci also provides various examples of surface

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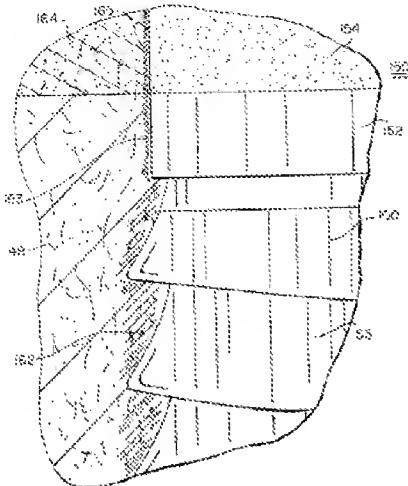
disclosed and supported by the specification as filed. Further, just as the subgenus range “between 35% and 60%” was proper in *Wertheim* because it was within the disclosed genus range, the subgenus range of “greater than 20%” is proper in this Application because it is within the disclosed genus range of “20% or more.”

<sup>3</sup> Appellants do not argue that the claimed range is not an equivalent of the genus range of “20% or more.”

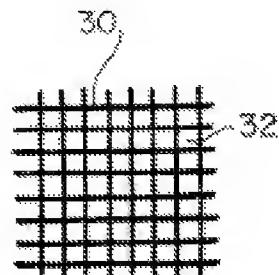
<sup>4</sup> See Ricci, Abstract.

<sup>5</sup> See *id.* at col. 4, lines 37-49.

patterns. For example, as shown below, Figure 27 illustrates an implant, and Figure 6 illustrates a proposed surface pattern of grooves and ridges” used on a collar portion 154 of the implant.



## Figure 27 of Ricci



**Figure 6 of Ricci**

The Final Office Action indicates that Ricci provides no teaching that the surface pattern would be inclined with respect to a longitudinal axis of the implant.<sup>6</sup> Further, the Final Office Action also indicates that Ricci does not teach or otherwise disclose grooves and recesses having a depth or width within the ranges claimed in Claims 1 and 19.<sup>7</sup>

Dinkelacker is directed to a cylindrical dental implant having numerous groove-shaped recesses “along its lengthwise axis or at a sharp angle to it.”<sup>8</sup> Dinkelacker indicates that the groove-shaped recesses can be crosswise, as shown in Figure 8 at right, in order to offer “favorable conditions for osteons to collect during the healing phase and additionally secure against axial shifting and rotation of the implant after healing.”<sup>9</sup> Additionally, Dinkelacker illustrates that the groove-shaped recesses extend only along the body area 30, not along the collar 32.

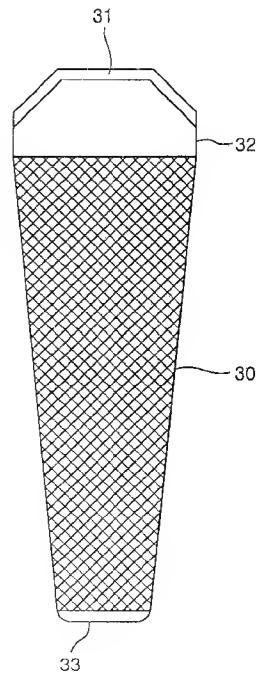


Fig. 8

<sup>6</sup> See Office Action, p. 4.

<sup>7</sup> See *id.*

<sup>8</sup> Dinkelacker, Abstract, Figures 8 and 15.

<sup>9</sup> See *id.* at col. 2, lines 8-19 (emphasis added).

## **2. The Proposed Combination of Ricci and Dinkelacker is Improper.**

Appellants recognize that the standard for determining whether a modification is proper has been set forth previously by the Supreme Court. The Court has indicated:

Often, it will be necessary for a court to look to interrelated teachings of multiple patents; the effects of demands known to the design community or present in the marketplace; and the background knowledge possessed by a person having ordinary skill in the art, all in order to determine whether there was an apparent reason to combine the known elements in the fashion claimed by the patent at issue. To facilitate review, this analysis should be made explicit. See *In re Kahn*, 441 F.3d 977, 988 (C.A.Fed.2006) (“Rejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness”). As our precedents make clear, however, the analysis need not seek out precise teachings directed to the specific subject matter of the challenged claim, for a court can take account of the inferences and creative steps that a person of ordinary skill in the art would employ.<sup>10</sup>

Further, the Court also indicated that if a combination of known elements was “obvious to try” to address a recognized problem, the combination may have been obvious under Section 103(a).<sup>11</sup> In the present case, one of skill in the art would not combine alleged features of Ricci and Dinkelacker to arrive at the implants of Claims 1 and 19. Without providing any “articulated reasoning with some rational underpinning,” the Examiner improperly concluded that it would have been obvious to one of skill in the art to combine Ricci and Dinkelacker.

Appellants respectfully submit that the Final Office Action fails to articulate any valid reason that justifies modifying the Ricci implant with Dinkelacker to create an implant as recited in Claims 1 and 19.

First, the nature of the problem to be solved by the crosswise groove-shaped recesses of Dinkelacker does not provide a reason to combine the references in the manner proposed. Specifically, even if Dinkelacker could be combined with Ricci, the crosswise groove-shaped recesses of Dinkelacker would not be used along the lower region 152 above the anchor 53 of the Ricci implant. Instead, Dinkelacker teaches one of skill that the crosswise groove-shaped

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<sup>10</sup> KSR International Co. v. Teleflex Inc., 127 S.Ct. 1727, 1740-41 (2007).

<sup>11</sup> *See id.*

recesses should be used along the anchor 53 of the Ricci implant.<sup>12</sup> A person of skill would not make the mental leap of moving the crosswise groove-shaped recesses onto a different portion of the Ricci implant without any basis for reasoning for doing so. A person of skill, reading the entire disclosures of Dinkelacker and Ricci, would be motivated to use the crosswise groove-shaped recesses on the anchor portion of Ricci, but would not be motivated to apply the crosswise groove-shaped recesses onto the lower region 152 of the Ricci implant. Indeed, there is no teaching or reason provided in Dinkelacker or Ricci that suggests modifying the lower region 152 in Ricci as proposed, since Dinkelacker teaches that grooves are used only on the body area 30 or anchor.

Further, a person skilled in the art would not consult Dinkelacker to increase resistance to forces directed at an incline in relation to the implant because Dinkelacker does not discuss or acknowledge this technical effect. For example, the present Application indicates that, “in addition to the known osteoconduction of the grooves, [the pattern of grooves and/or recesses] also makes the implant resistant to inclinations between the principal direction of an impinging force or impinging forces and the longitudinal direction of the implant.”<sup>13</sup> Further, the present Application also indicates that, “in the implanted position, [the pattern of grooves and/or recesses] extend substantially at right angles in relation to said force or forces when these latter assume a principal direction or principal directions differing from the longitudinal direction of the implant.”<sup>14</sup> None of these reasons are discussed or taught in the cited references and no other teachings and Ricci or Dinkelacker suggest to a person of skill that Ricci could be modified in the manner proposed. Therefore, a person of skill would not modify Ricci with Dinkelacker as proposed.

The proposed combination is also improper because it does not yield a predictable result – bone formation and osseointegration is not a predictable art. In addition, the proposed combination is also improper because it does not combine “old elements with each performing the same function it had been known to perform and yielding no more than one would expect

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<sup>12</sup> See Dinkelacker, Figure 8. None of the implants illustrated in Dinkelacker show that the groove patterns can be or should be used on the collars of the implants; instead, Dinkelacker illustrates other surface patterns used on the collars, but not grooves. See *id.* at Figures 1, 11, 14, and col. 6, lines 55-64.

<sup>13</sup> Present Application, p. 2, lines 1-7 (emphasis added).

from such an arrangement.”<sup>15</sup> The crosswise groove-shaped recesses are used only on the anchor portion of the Dinkelacker implant, not along a collar portion, and the unexpected proposed modification to use the crosswise groove-shaped recesses on the lower region 152 of the Ricci implant would perform a function that was not previously known from either Dinkelacker or Ricci.

Indeed, the Final Office Action has not provided any evidence or analysis that it would be obvious in the art to modify Ricci with Dinkelacker as proposed to provide the implants recited in Claims 1 and 19. Therefore, Appellants respectfully submit that the combination Ricci and Dinkelacker is improper and request that this honorable Board reverse the rejection of Claim 1-2, 5-9, 13-14 and 15-22 under Section 103(a).

### **3. The Examiner has Used Improper Hindsight Reasoning in Applying the Combination of Ricci and Dinkelacker.**

Appellants respectfully submit that the Examiner’s only manner of reaching the proposed combination of Ricci and Dinkelacker is through the use of impermissible hindsight reasoning. As noted by the Federal Circuit, a “[d]etermination of obviousness cannot be based on the hindsight combination of components selectively culled from the prior art to fit the parameters of the patented invention.”<sup>16</sup>

As discussed above, one of skill in the art would not make the inferences or mental steps proposed by the Examiner. A person of skill would combine Dinkelacker and Ricci to place the crosswise groove-shaped recesses of Dinkelacker onto the anchor portion of the Ricci implant, not onto the lower region 152 thereof. The Examiner has failed to provide any “articulated reasoning with some rational underpinning,” as required by the Supreme Court, to justify a why a person of skill would not simply apply the crosswise groove-shaped recesses of Dinkelacker onto the anchor, but would somehow decide to apply the crosswise groove-shaped recesses onto the lower region 152 thereof. In making the rejection, the Examiner merely states,

““[i]t would have been obvious to one having ordinary skill in the art at the time of the invention to modify the implant taught by Ricci with the size and

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<sup>14</sup> See *id.* at p. 2, lines 20-26.

<sup>15</sup> See M.P.E.P. 2141.

<sup>16</sup> *ATD Corp. v. Lydall, Inc.*, 159 F.3d 534, 546 (Fed. Cir. 1998).

arrangement of the pattern of grooves and recesses in order to secure against axial shifting and rotation of the implant after healing.”<sup>17</sup>

Although this statement from the Final Office Action may justify the application of the crosswise groove-shaped recesses onto the anchor portion of the Ricci implant, it does not indicate why the crosswise groove-shaped recesses would be applied to the lower region 152 of the Ricci implant.

For at least these reasons, it appears that the Final Office Action improperly gleans knowledge from the Appellant’s disclosure.<sup>18</sup> There is no evidence in the record that one of skill in the art would interpret and combine Ricci and Dinkelacker in the manner suggested by the Examiner. The Office Action’s mere combination of features from these references is not a result of applying skill in the art—it is a result of impermissible hindsight reasoning.

Therefore, Appellant requests that the rejection of Claim 1-2, 5-9, 13-14 and 15-22 be reversed, and that these claims be indicated as allowable over the art of record.

#### **4. The Proposed Combination Fails to Disclose Each and Every Feature of Claims 1 and 19.**

Even assuming that the proposed combination of Ricci and Dinkelacker was proper, the proposed combination does not teach each and every feature recited in Claims 1 and 19.

In particular, Dinkelacker teaches only crosswise groove-shaped recesses that extend along the body area 30 of the implant, not along the collar 32 thereof.<sup>19</sup> Accordingly, assuming that the proposed combination of Ricci and Dinkelacker was proper, the proposed combination would yield an implant having crosswise groove-shaped recesses along the anchor 53 of the Ricci implant. The lower region 152 of the Ricci implant would not be modified because no teaching or other reason exists for making such a modification. Therefore, a skilled person would only apply the crosswise groove-shaped recesses of Dinkelacker to the anchor 53 of the implant in Ricci, not to the lower region 152 in Ricci above the anchor 53. As such, the combination of Ricci and Dinkelacker would not teach each and every feature recited in Claims 1 and 19.

Therefore, Appellants respectfully requests that the rejection of Claims 1-2, 5-9, 13-14 and 15-22 be reversed.

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<sup>17</sup> See Final Office Action, p. 4 (emphasis added).

<sup>18</sup> See *In re McLaughlin* 443 F.2d 1392, 1395, 170 USPQ 209, 212 (CCPA 1971).

<sup>19</sup> See Dinkelacker, Figure 8.

Docket No.: NOBELB.244NP  
Appl. No.: 10/583,817  
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**C. Conclusion**

As discussed above, the rejection under Section 103(a) is improper because the combination of Ricci and Dinkelacker is improper and is the result of impermissible hindsight reasoning. The Final Office Action fails to provide any reason why a person of skill would otherwise modify the combination to produce the dental implant recited in Claims 1 and 19. Accordingly, Appellants respectfully ask this Board to reverse the rejections of Claims 1-2, 5-9, 13-14 and 15-22, as well as under Section 103(a).

## VIII. CLAIMS APPENDIX

Inserted below as a Claims Appendix is a copy of the rejected claims in the present Application. Claim 1-2, 5-9, 13-14 and 15-22 are being appealed. For clarity, Appellants have indicated which claims are the subject of the present Appeal using the parentheticals (NotAppealed) or (Under Appeal).

1. **(Under Appeal)** A dental implant for insertion into a hole formed in a jaw bone and exposure to an impinging force or impinging forces, the dental implant comprising a threaded lower portion and one or more peripherally extending surfaces which are arranged at an upper portion of the dental implant above the threaded lower portion and are configured to be placed against a jaw bone part at an outlet opening of the hole, wherein the one or more peripherally extending surfaces are provided with a pattern of grooves and/or recesses, at least a portion of the pattern of grooves and/or recesses being inclined with respect to a longitudinal axis of the implant and an axis extending perpendicular to the longitudinal axis of the implant, the pattern of grooves and/or recesses including grooves and/or recesses extending in at least two directions of inclination and wherein the grooves and/or recesses have a depth (D) which lies in the range of about 50-100  $\mu\text{m}$  and a width (B) in the range of about 100-150  $\mu\text{m}$ .

2. **(Under Appeal)** The dental implant as in claim 1, wherein the pattern of grooves and/or recesses form a closed loop that divides an upper part and a lower part of the upper portion of the implant for preventing ingress of bacteria from the upper portion to a lower portion of the implant.

3. **(Canceled)**

4. **(Canceled)**

5. **(Under Appeal)** The dental implant as in claim 1, wherein the upper portion has an inner socket which is polygonal, toothed or with two or more wings, and the grooves and/or the recesses are arranged at parts of greater material thickness at the upper portion.

6. **(Under Appeal)** The dental implant as in claim 1, wherein the pattern comprises straight and parallel groove parts with at least two directions of inclination, the pattern being arranged around all or part of the peripheral surface.

7. **(Under Appeal)** The dental implant as in claim 1, wherein the pattern comprises sinusoidal groove recess parts.

8. **(Under Appeal)** The dental implant as in claim 1, wherein the pattern comprises one or more groups of grooves arranged mutually parallel and with different longitudinal extents.

9. **(Under Appeal)** The dental implant as in claim 1, wherein the peripherally extending surfaces are formed on a flange arrangement.

10. **(Canceled)**

11. **(Canceled)**

12. **(Canceled)**

13. **(Under Appeal)** The dental implant as in claim 1, wherein when the implant is exposed to forces with mutually different directions, a first part or parts of the groove and/or recess pattern is/are substantially at right angles in relation to a first force direction and a second part or parts of the pattern is/are substantially at right angles in relation to a second force direction.

14. **(Under Appeal)** The dental implant as in claim 9, wherein in said flange arrangement is cylindrical.

15. **(Under Appeal)** The dental implant as in claim 9, wherein in said flange arrangement is conical.

16. **(Under Appeal)** The dental implant as in claim 9, wherein in said flange arrangement is scalloped.

17. **(Under Appeal)** The dental implant as in claim 1, wherein greater than 20% of a given groove and/or recess is inclined relative to the longitudinal axis of the implant.

18. **(Under Appeal)** The dental implant as in claim 1, wherein the grooves and/or recesses of the pattern intersect with each other.

19. **(Under Appeal)** A dental implant for insertion into a hole formed in a jaw bone, the dental implant comprising a lower threaded portion and a collar arranged at an upper portion of a dental implant above the lower threaded portion, the collar including a pattern of grooves and/or recesses which are configured to be placed against a jaw bone part at an outlet opening of the hole, at least a portion of the pattern of grooves and/or recesses being inclined with respect to a longitudinal axis of the implant and an axis extending perpendicular to the longitudinal axis of

Docket No.: NOBELB.244NP  
Appl. No.: 10/583,817  
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the implant, the pattern of grooves and/or recesses including grooves and/or recesses extending in at least two directions of inclination and wherein the grooves and/or recesses have a depth (D) which lies in the range of about 50-100  $\mu\text{m}$  and a width (B) in the range of about 100-150  $\mu\text{m}$ .

20. **(Under Appeal)** The dental implant as in claim 20, wherein the pattern of grooves and/or recesses form a closed system dividing the implant into upper and/or lower parts.

21. **(Under Appeal)** The dental implant as in claim 20, wherein greater than 20% of a given groove and/or recess is inclined relative to the longitudinal axis of the implant.

22. **(Under Appeal)** The dental implant as in claim 20, wherein the grooves and/or recesses of the pattern intersect with each other.

Docket No.: NOBELB.244NP  
Appl. No.: 10/583,817  
Filing Date: December 8, 2008

**Customer No.: 20995**

## **IX. EVIDENCE APPENDIX**

Appellants are submitting no evidence with this appeal.

Docket No.: NOBELB.244NP  
Appl. No.: 10/583,817  
Filing Date: December 8, 2008

**Customer No.: 20995**

#### **X. RELATED PROCEEDINGS APPENDIX**

Appellants are unaware of any related appeals or interferences.

Dated: November 7, 2011

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